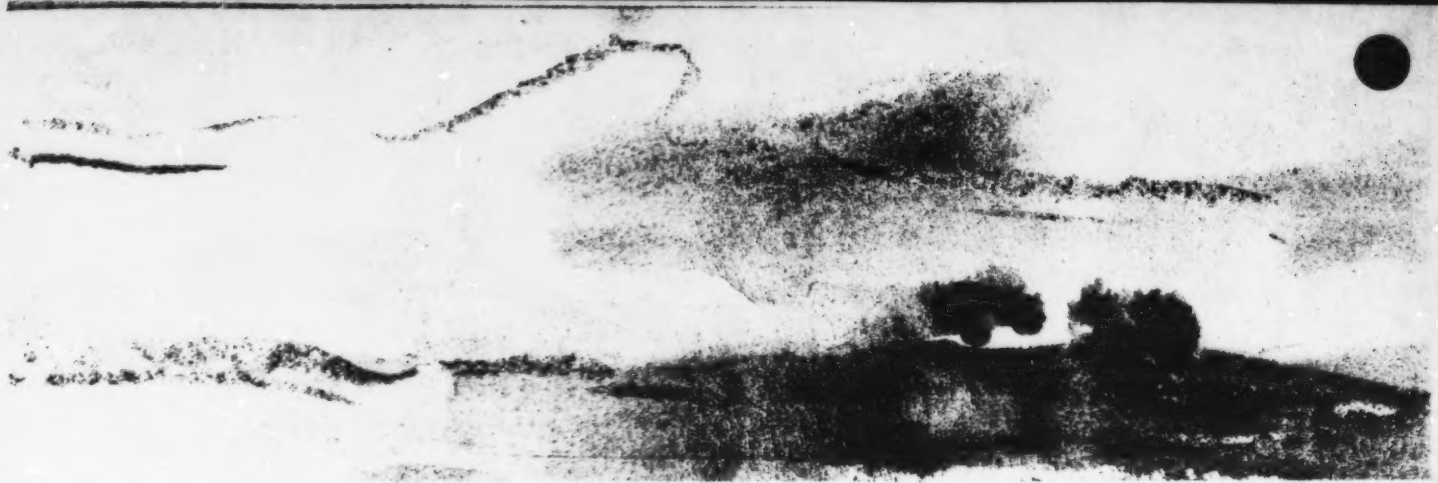


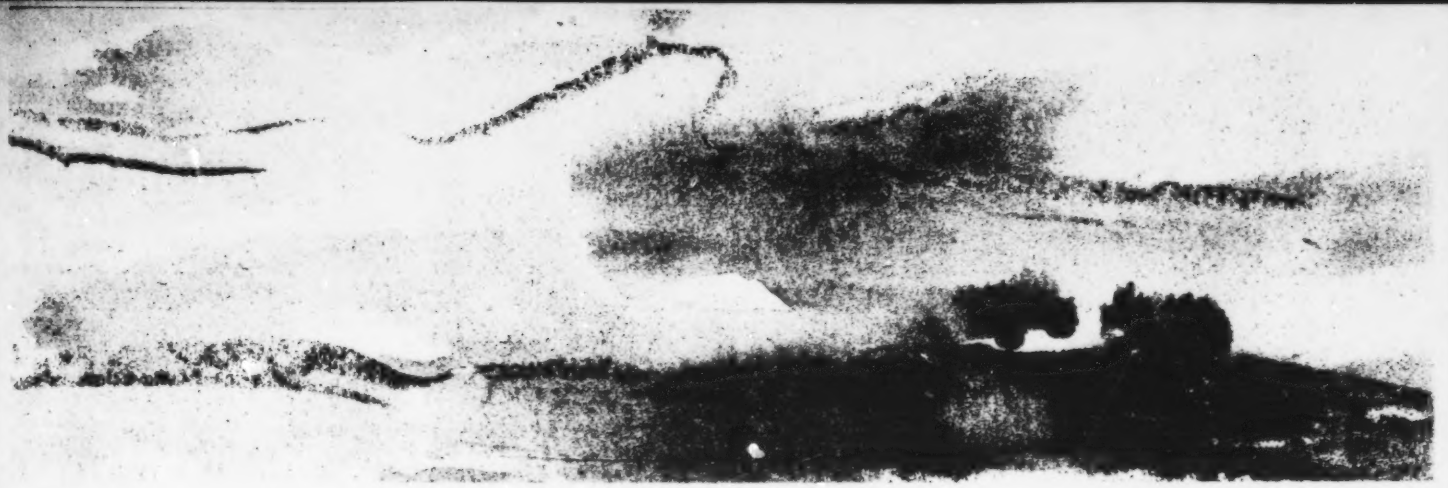


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Water Resources Commission

Alberta

WATER RESOURCES COMMISSION



ANNUAL REPORT 1988-1989

Water Resources Commission

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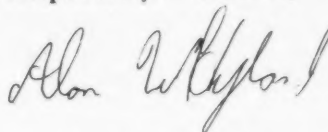
910 Harley Court, 10045 - 111 Street, Edmonton, Alberta, Canada T5K 2M5 403/422-4232

The Honourable Rick Orman
Chairman, Cabinet Committee
on Economic Planning

Sir:

I have the honour to present the Annual Report of the Water Resources Commission for the year ending March 31, 1989.

Respectfully submitted,



Alan Hyland, M.L.A.
Chairman



228 Legislature Building, Edmonton, Alberta, Canada T5K 2B6 403/427-3740

Her Honour Helen Hunley
Lieutenant-Governor
of the Province of Alberta

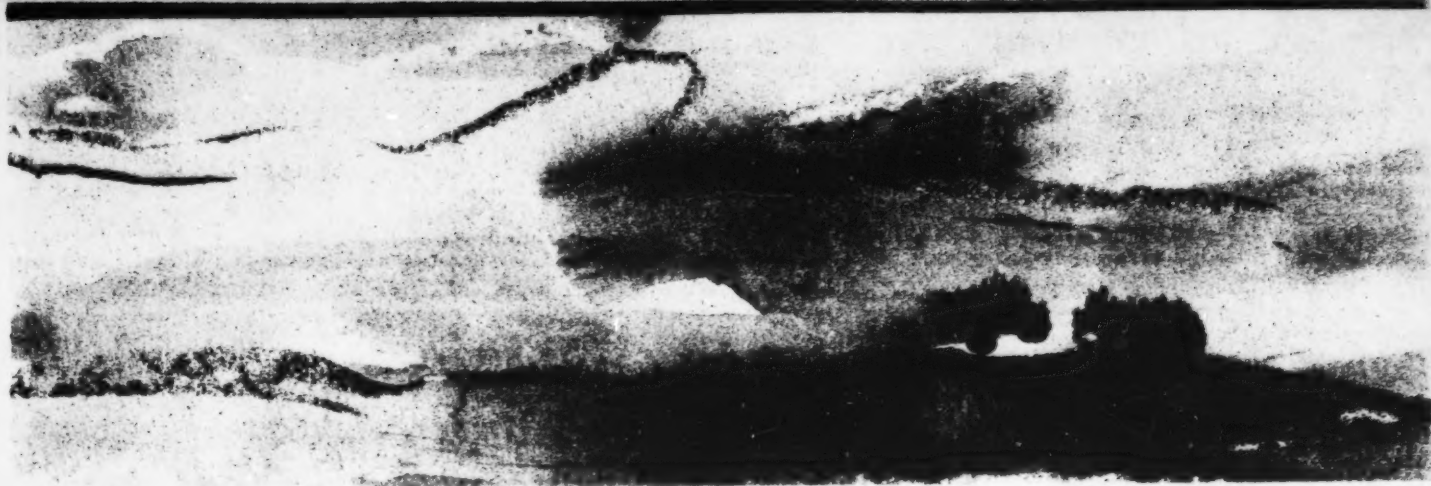
Madam:

I have the honour to hereby transmit the Annual Report of the Water Resources Commission for the year ending March 31, 1989.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Rick Orman'.

Rick Orman
Minister

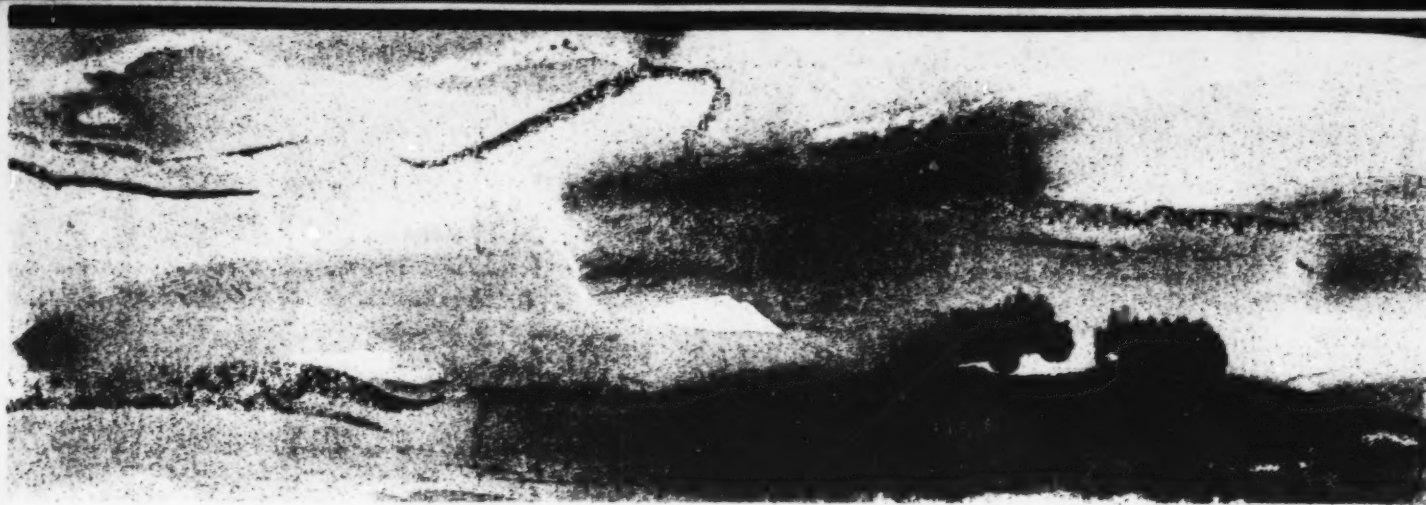


Water is increasingly recognized as one of Alberta's most precious natural resources. It is essential for all life and human activity and its quality and abundance are important determinants of the quality of life enjoyed by our citizens.

In the most general terms, water is an abundant resource in Alberta. However, supply and demand are often out of step, both in time and place. Water resources are becoming increasingly scarce in southern Alberta in relation to the demands which are being placed on them. Excess water in northern Alberta may create problems of flooding and soil erosion. Water quality, recreational and aesthetic factors are important in many parts of the province.

The wise management of water is, therefore, of prime importance. The use of water resources by one sector of society or the economy frequently means that less will be available for other sectors. Rivers, lakes, wetlands and groundwater each present distinctive challenges and opportunities. Water resources should be managed for the maximum benefit of all Albertans; management should be guided by the principles of conservation and multiple use.

In recognition of the need to manage Alberta's water in a coordinated manner and for the benefit of multiple users, the Water Resources Commission Act was passed in 1983, establishing the Commission and defining its mandate for a five year period. The Act was amended in 1987, extending this mandate for a further five years.



ROLE AND RESPONSIBILITIES

Under the Water Resources Commission Act the Commission is responsible for advising the Alberta government with regard to:

- long-term water resource planning in relation to agricultural, economic, community and environmental factors;
- evaluations of specific short and long-term water resource projects;
- intergovernmental negotiations affecting the water resources of Alberta;
- the administration and general policy of the government regarding water resources.

At the request of the government, the Commission undertakes public consultation on matters regarding water resources in the province.

The Commission's role in support of the province's water management objectives is basically to advise on policy matters for the purpose of providing assistance in decision-making by the departments involved in the administration and management of water. The Commission provides a forum for weighing water resource issues affecting a wide spectrum of users and involving a number of disciplines.

The Commission provides financial support to water management research and public awareness projects. Priority is placed on topics which emphasize multiple use and benefits from water management. Projects are supervised and partially funded by the departments represented on the Commission and are frequently undertaken by private sector consulting firms.



MEMBERSHIP AND REPORTING LINE

The membership of the Water Resources Commission is composed of representatives from the Legislative Assembly, the public at large, and five government departments at the Assistant Deputy Minister level. These departments are Agriculture; Economic Development and Trade; Environment; Forestry, Lands, and Wildlife; and Municipal Affairs.

Two members of the Legislative Assembly are appointed by the Lieutenant-Governor in Council. The M.L.A. for Dunvegan, Mr. Glen Clegg, was Chairman of the Commission during the 1988/89 period. Mr. Tom Musgrove, M.L.A. for Bow Valley, was a member.

Four persons, appointed by the Lieutenant-Governor in Council, represent the public at large. These members for 1988/89 were Mr.

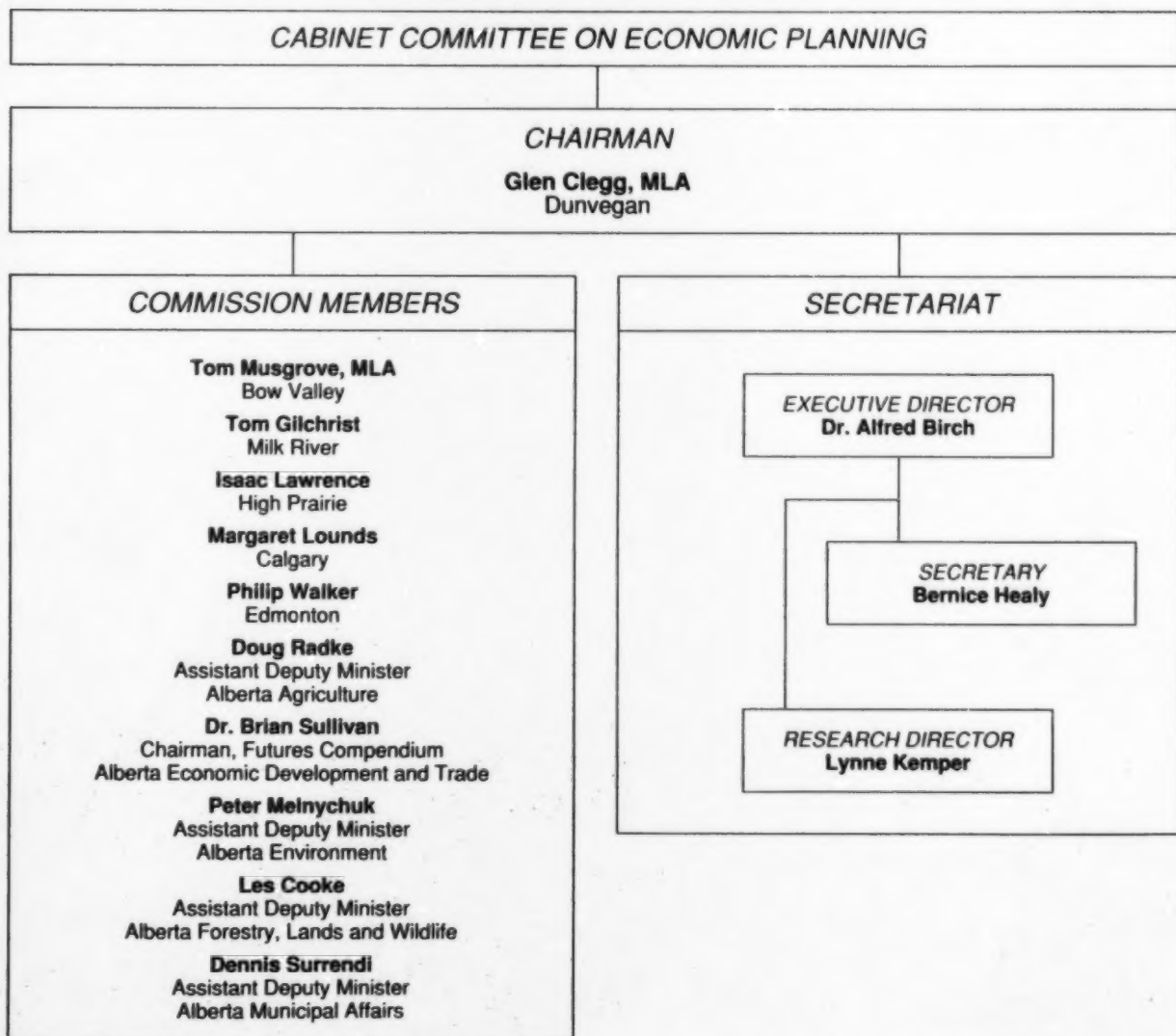
Isaac Lawrence (High Prairie), Mr. Philip Walker (Edmonton), Mrs. Margaret Lounds (Calgary), and Mr. Tom Gilchrist (Milk River).

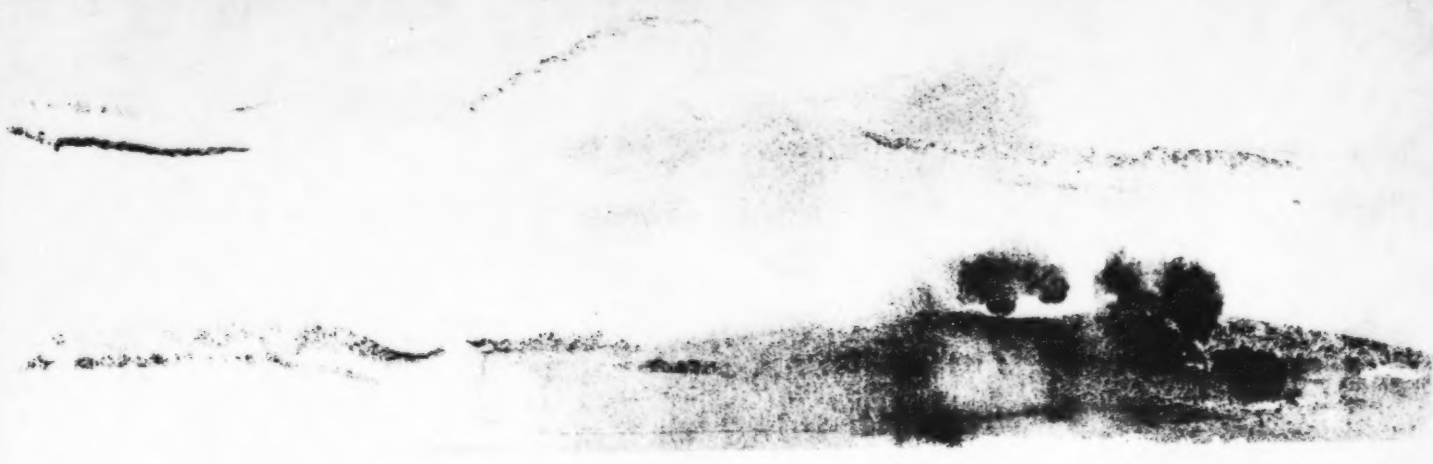
The Water Resources Commission reports to the Provincial Cabinet through the Cabinet's Economic Planning Committee. From time to time, representations are also made to other cabinet members as appropriate. The Commission is not directly affiliated with any of the provincial departments.

In administrative matters, the Commission reports to the Executive Council of the provincial government. Staff support to the Commission is provided by a Secretariat composed of an Executive Director, Research Director, and Secretary. Dr. Alfred Birch was appointed as Executive Director in June of 1988.



ALBERTA WATER RESOURCES COMMISSION ORGANIZATION CHART





HIGHLIGHTS

The work of the Commission centred around three major issues during this fiscal period.

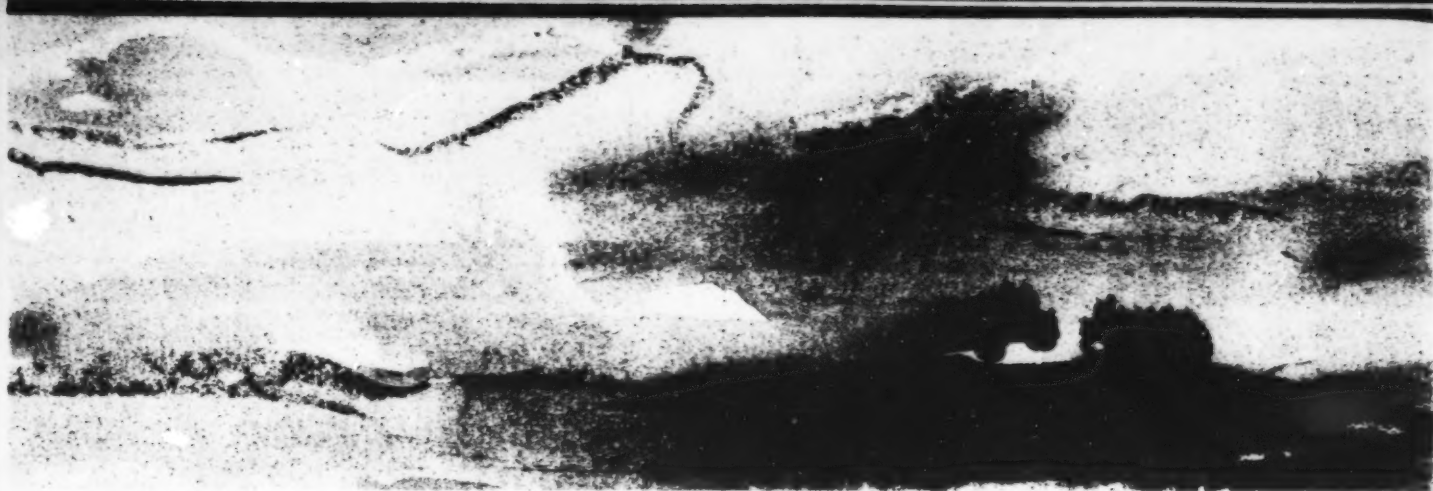
Water supply in the South Saskatchewan River Basin (SSRB) was a major concern. Activities related to this included investigations into possible irrigation expansion limits, examination of the Irrigation Rehabilitation and Expansion Program and of proposals for a renewal of the program, review of a proposed Private Irrigators Assistance Program, support for a task force and strategy to establish minimum instream flows and an initial review of Alberta Environment's proposed policy initiatives for the South Saskatchewan River Basin. The Commission held open houses in southern Alberta in the fall of 1988 to discuss with the public the need for irrigation expansion guidelines and possible targets for such guidelines.

The issue of **wetland management** and the need for a coordinated, planned approach to agricultural land drainage was another major component of the Commission's activities in 1988/89. The report, *Drainage Potential in Alberta: An Integrated Study*, sponsored largely by the Commission, provided several recommendations for action regarding wetland drainage. The Sub-Basin Water Management Study in northwestern Alberta began a pilot study of two small watersheds, focusing on such factors as extent of

agricultural development and wetland conservation. The On-Farm Water Management Study continued its examination of technical issues surrounding alternatives to conventional drainage as well as providing demonstration projects. A major focus of the Commission work involved chairing an inter-departmental group developing a draft wetland policy.

The third major area of Commission activity centred on **public awareness** activities. This included the open houses mentioned above, support for the development of an Atlas of Alberta Lakes and support for and participation in the organization of several conferences including the first Alberta Rivers Conference, "Flowing to the Future: A River is More Than Just Water" and two dealing with wetlands, "Wetlands, Wildlife and Agriculture". In addition Commission members and staff participated in a number of tours, meetings and conferences throughout the year.

A final highlight of the year was participation, during February, in the official opening of the **Henry Kroeger Memorial Water Line**. This line supplies domestic water to individuals and municipalities from Hanna to Oyen. A secure, good-quality water supply for residents of this area had long been a dream of the late Mr. Kroeger, the first Chairman of the Water Resources Commission.



WATER SUPPLY IN THE SOUTH SASKATCHEWAN RIVER BASIN

The Water Resources Commission began consideration of a set of water management policy proposals for the South Saskatchewan River Basin introduced by Alberta Environment. These represent the next stage in a series of planning and public consultation activities in the SSRB which began with Environment's Planning Program in the early eighties and continued with the Commission's hearings and report (*South Saskatchewan River Basin: Report and Recommendations*). Awareness that the supply of water in the

SSRB is close to being fully allocated has resulted in the need to determine limits to irrigation expansion and to clearly define a water use and management policy. The purpose of the policy is to ensure that the limits are established and reviewed within a multi-purpose use framework that includes protection of instream flows and conservation and public consultation initiatives. In order to finalize the guideline numbers and implement the policy, several studies and complementary activities will be necessary.

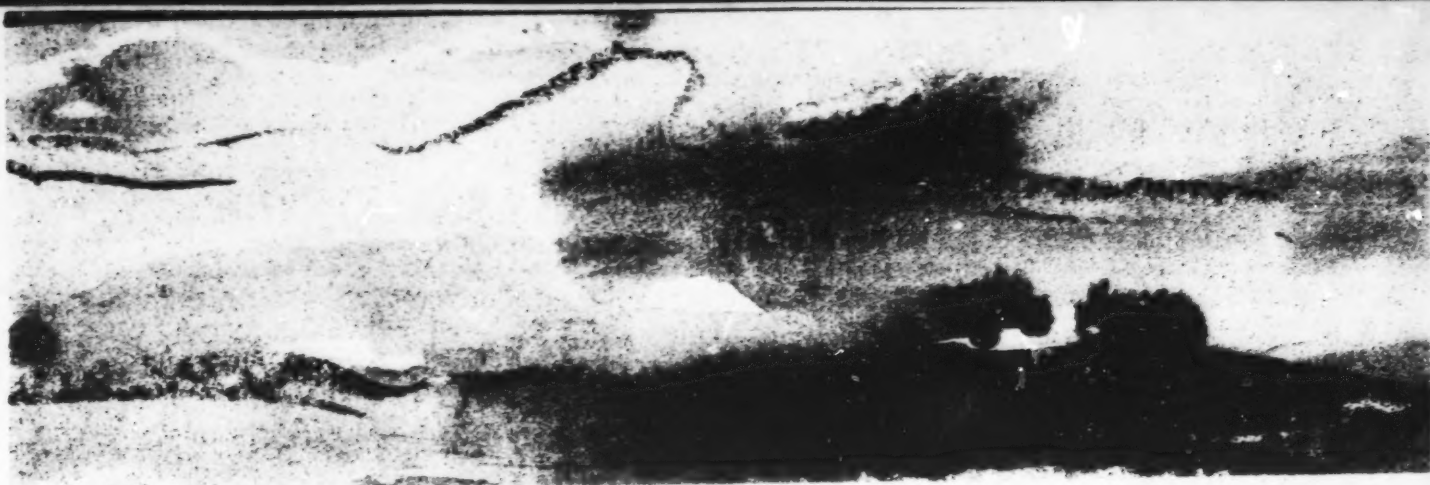
Irrigation Expansion Guidelines

Alberta Environment introduced the concept of irrigation expansion guidelines to the Commission as part of their response to the Commission's recommendations from the South Saskatchewan Hearings. The Commission heard presentations on the development of appropriate guideline numbers. Factors considered in the process included historical flow and demand records, approximate instream flow amounts, growth of municipal, domestic and industrial uses and apportionment requirements.

The Commission held open houses in High

River, Brooks, Medicine Hat, Pincher Creek, and Lethbridge during September to inform the public of the need for irrigation expansion guidelines and to discuss appropriate acreage amounts. The information presented included possible expansion limits, instream flow considerations and agronomic factors. In addition, the Commission also received comments from the Oldman, Southeast, Palliser, and Red Deer Regional Planning Commissions.

Discussions and meetings were held with Irrigation Council and irrigation districts



regarding the proposed guidelines and the impact they would have on the districts' future plans. The comments received during this process were considered along with the responses from the open houses and the Commission members' examination of background material. The Commission

recognized the need for guidelines to be open to periodic review, so that as more information on non-irrigation uses and needs, irrigation risk factors, and actual irrigation use becomes available the guidelines could be adjusted accordingly.

South Saskatchewan River Basin Policy Statements

A draft of the policy statements, prepared by Alberta Environment, was presented to the Commission for initial consideration and comment. The policy covers six major areas: multi-purpose use; priority of uses including minimum and preferred instream flows; irrigation; apportionment commitments; water conservation and public consultation.

Several issues required highlighting during consideration of the proposed policies:

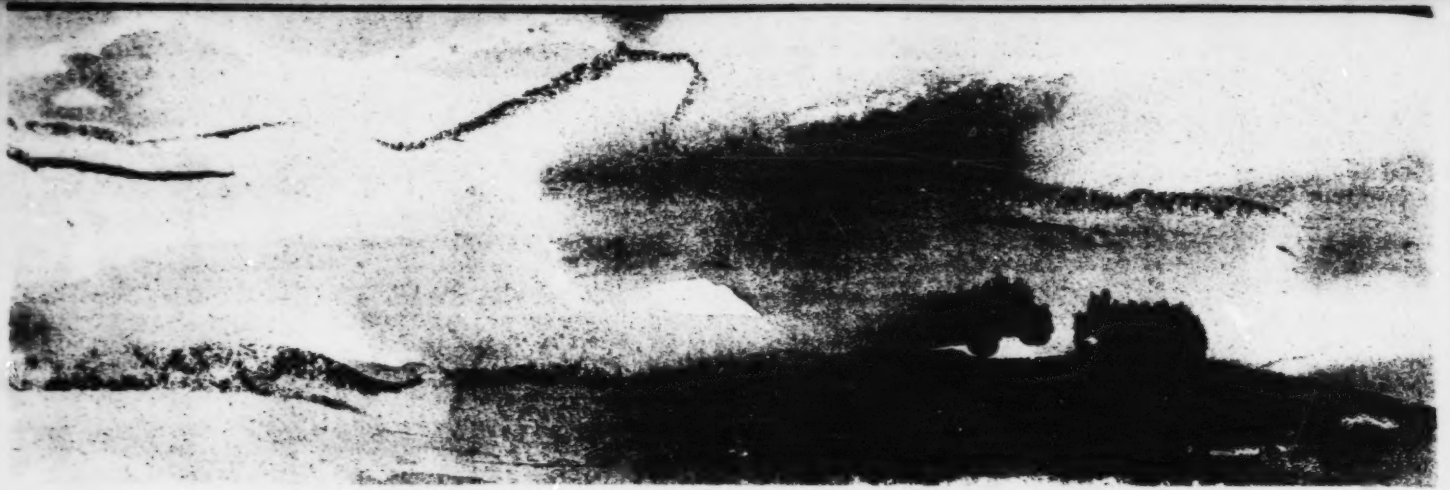
- the need to review and amend the Water Resources Act;
- the need to state strongly the finite nature of the supply; and
- the need to emphasize the multiplicity of uses and their growing importance.

Instream Flow Needs

The need to determine appropriate instream flows, both minimum and preferred, is an essential step in determining what water supply is available for other uses. Instream flow needs generally refer to fish habitat but also include recreational uses and water quality considerations.

The Commission supported the establishment of a task force to direct the

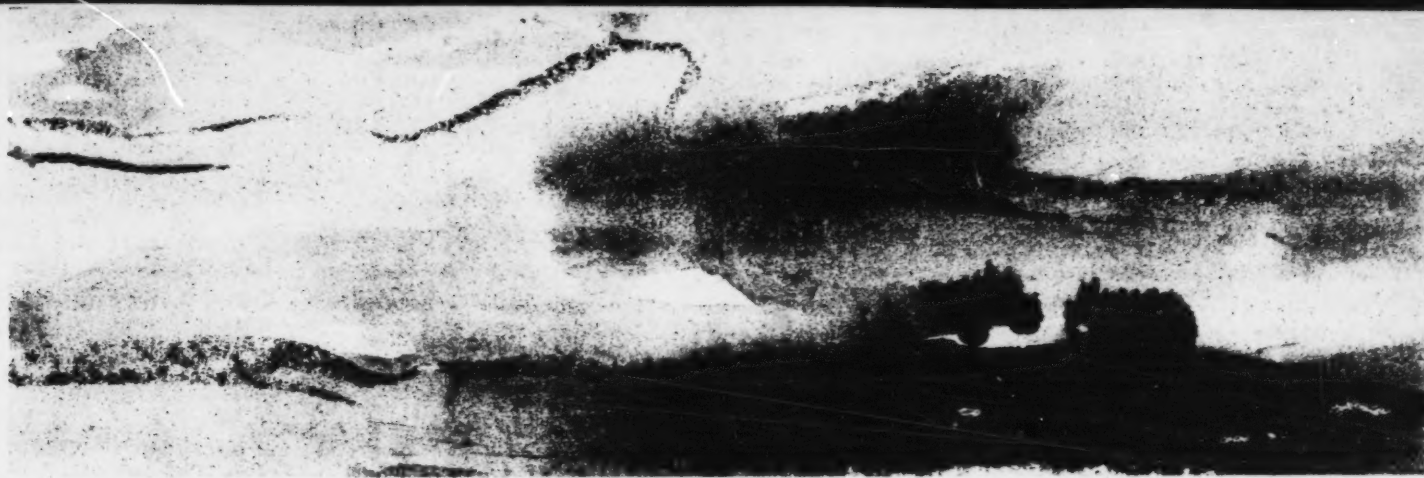
determination of instream flow requirements. The task force has representation from a number of departments and oversees a number of river basin working groups and extensive public consultation. Recommendations for each basin will be brought back to the Commission for final consideration before presentation to Cabinet Committee.



Irrigation Rehabilitation and Expansion Program

The Commission reviewed a report assessing the current Rehabilitation and Expansion Program for irrigation district works and the requirements of the districts for future work and support. Several scenarios for program completion under the last five year term of the program were prepared by Alberta Agriculture and discussed by the Commission. Members supported the need for each district to conform to expansion guideline numbers in their planning and to review completion targets.

In considering the implications of the final phase of the Rehabilitation and Expansion Program and the expansion guidelines, the Commission recognized that the Western Irrigation District would have special planning needs in order to remain financially viable. The Commission agreed to co-sponsor a study to develop a strategic plan for the establishment of priorities which will assure long-term district viability and the protection of both district and provincial assets.



WETLAND MANAGEMENT

The Commission was involved in a number of studies relating to wetland management. Central to all of them was the development of a policy directing wetland management and conservation. The continuing loss of wetlands, the implications of this loss and the lack of a wetland policy became apparent during the Commission's involvement in the study of drainage potential on agricultural lands in the province. That study, *Drainage Potential in Alberta: An Integrated Study*, was released in

June, 1988. It stressed the impacts of the continuing trend of wetland drainage, both in public expenses incurred for erosion and flood control and in loss of wildlife habitat, and the benefits of drainage from the landowners perspective. The recommendations of the report supported the continuation of activities such as the Sub-Basin Water Management Planning Program, the On-Farm Water Management Study, and the development of a Wetlands Management and Conservation Policy.

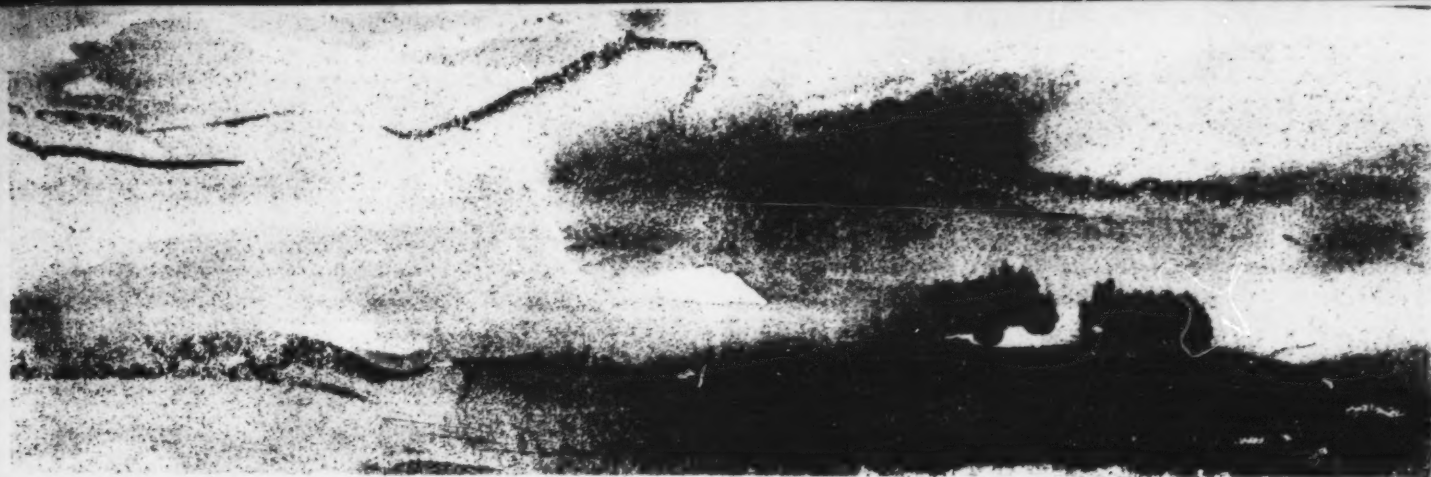
Wetland Management and Conservation Policy

In recognition of the need for a coordinated government policy regarding wetlands, the Commission funded an interdepartmental assessment of policy options for effective wetland management and conservation to provide appropriate benefits to a variety of users. The study was confined to the settled area of the province as the concerns and problems are distinctive and wetland loss more advanced than in the forested area.

The background work examined existing information on the type, extent, location, value and factors influencing the loss of

wetlands. It also included a comprehensive listing of provincial government policies and programs affecting wetlands, consideration of major federal government policies and programs and the activities of non-government organizations. Wetland conservation programs in other jurisdictions were also assessed.

Based on this information, a draft policy and implementation strategies were prepared. Planning was begun for a possible public consultation phase prior to submission of the policy for Cabinet approval.



A draft of the Environment Council of Alberta wetlands sector conservation strategy was reviewed and recommendations for a

broader, more integrated approach to the issue and consideration of all user perspectives were made.

Sub-Basin Water Management Planning Program

Support for this program to provide integrated plans addressing drainage, erosion control and habitat loss problems in northwestern Alberta was continued in 1988/89. To date, 13 of more than 100 water management units (small watersheds) in the Peace River region had been examined and cost estimates for complete erosion control and habitat protection prepared. Estimated costs were very high with approximately 60% of total costs required for moving water from the farm gate to an adequate outlet, 30% for wildlife mitigation and 10% for on-farm works.

Detailed plans were begun on two of these watersheds to address the potential implementation of plans and to consider questions of appropriate amounts of habitat protection, allowable drainage, coordination between local authorities and cost control.

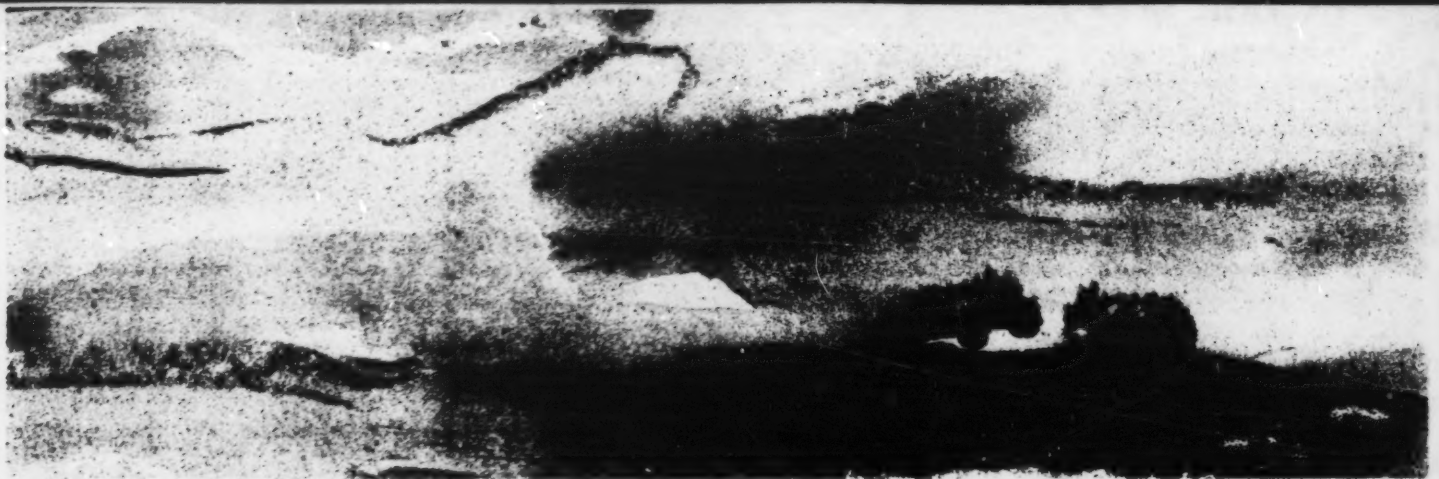
The two watersheds in the Fairview and Spirit River areas represent a variety of drainage situations, habitat conditions, initial levels of development and include several local authorities. Consultation with landowners and representatives of local governments was an important component of the work. Recommendations are expected based on these two pilot studies as to the overall direction and policy framework of future watershed planning in the region.

Work was also begun on a Regional Framework, a computerized, map-based representation of several key resource capabilities and constraints influencing drainage in the Peace River area. These factors included agricultural soil capability, bare soil erosion potential, known erosion and flooding concerns and critical wildlife habitat.

On-Farm Water Management

The objective of this study is to document the costs, benefits, hydrology, wildlife impacts and operational details of five on-farm water management alternatives as well as provide demonstration projects for other producers and local authorities. With

participation from Agriculture, Environment, Forestry, Lands and Wildlife, Municipal Affairs, and the Commission, sites were selected for the five alternatives and construction initiated. This study complements other soil and water



conservation initiatives of the provincial government.

Three sites in northwestern Alberta will test and demonstrate the following water management techniques:

- the option of controlled drainage, structurally slowing the rate of release of water from drained areas;
- the option of slough consolidation for agricultural purposes, in this case providing stockwater for a cattle operation; and
- slough consolidation with benefits for wildlife habitat, the drainage of most sloughs in an area or quarter to one larger slough in a corner of the property, to provide habitat for wildlife as well as improved field operations.

Similar techniques will be investigated at three other sites in central Alberta:

- slough consolidation for wildlife habitat and improved field operations, as above. The ratio of upland habitat to wetland area is different at the two sites;

- peatland water management, including backflooding and water table control at a forage/cattle operation; and

- the impacts of uncontrolled drainage in an upper portion of a controlled watershed.

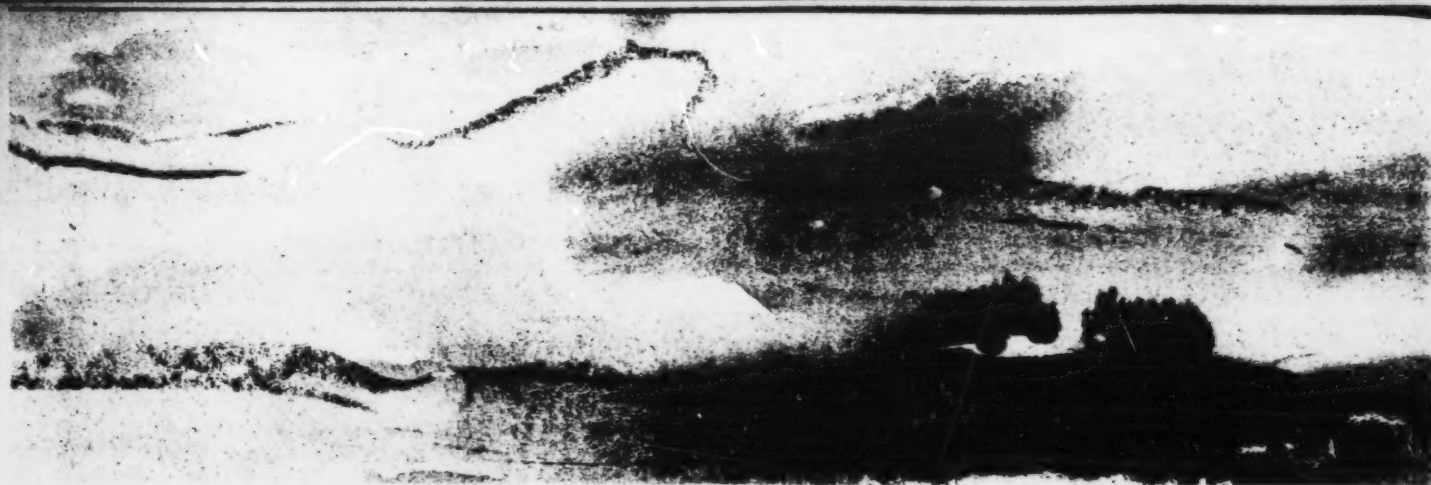
Weather, water runoff, crop quality and crop yield will be measured at all sites in 1989/90. Preliminary data was obtained from some sites during this fiscal year. Wildlife use was recorded at two sites. Preliminary indications were that drainage, even with consolidation resulted in an overall loss of waterfowl nesting habitat but during dry seasons such as experienced in 1988/89, the consolidation ponds provided good brood habitat.

North American Waterfowl Management Plan

The Commission reviewed the terms of this multi-participant plan and endorsed the provincial government's participation. With acceptance by all parties, the Plan will include Canadian and U.S. federal, provincial and state governments and Ducks Unlimited in an effort to protect and enhance continental waterfowl habitat to increase duck populations and prevent further losses. Activities will be cost-shared with the U.S. governments and non-government

organizations providing the majority of funds.

The first phase of the Plan's implementation in this province is in the Buffalo Lake area of central Alberta. Many activities are intended to focus on land use treatments that are compatible with good soil and water conservation and also create waterfowl habitat. Incentives would be available for landowners to retain habitat.



PUBLIC AWARENESS

A major component of the Commission's responsibilities is public consultation on water resource issues, which requires an informed public. As part of its work in this area, the Commission supported a number of activities. These included continued support for the preparation of an Atlas of Alberta Lakes which will compile information on the physical, water quality, plant, fisheries, wildlife, human activities and historical aspects of about 100 provincial lakes. Commission members and staff also assisted in the organization, participated in or attended a number of conferences in the water resources area. Topics covered included wetland management, new technology in

water resources management, impacts of climatic change, soil and water conservation and the importance of rivers to a broad spectrum of uses and users.

Work was also begun on the preparation of a brochure outlining the functions and activities of the Commission.

Commission members and staff were involved in tours of several irrigation districts, the Oldman Dam construction site, the Special Areas and parts of northwestern Alberta. These tours provide an opportunity to discuss water resources with people representing a variety of perspectives, concerns and suggestions.



ISSUES AND ACTIVITIES

During the course of Commission activities for the year, including ten regular meetings, a number of other water related issues were considered and follow-up action taken or recommendations made.

■ **Private Irrigation Assistance Program** Reviewed a proposal for a program to provide financial assistance to private irrigators to get water to their farm boundaries. Concerns were raised regarding expectations for water supply and recommendations made regarding implementation.

■ **Buffalo Bay/Horse Lakes** Reconfirmation was given to a previous recommendation that water management activities at the west end of Lesser Slave Lake be limited to some small selective projects which would alleviate extensive local problems but would not adversely affect wildlife and fisheries habitat. All future works should be compatible with long-term land use plans.

■ **Transboundary Issues** Reviewed progress on negotiations with British Columbia regarding the Peace River and with other downstream jurisdictions in the Mackenzie Basin. The Commission will review the draft agreement when it is prepared.

■ **Cargill Meat Packing Plant at High River** Reviewed water supply and waste water disposal recommendations for this plant and supported the Frank Lake effluent disposal alternative which reduces impacts on the Highwood and Bow Rivers and promotes multiple use benefits for Frank Lake.

■ **Oldman Dam** Monitored on-going legal and administrative developments regarding the Oldman Dam.

■ **Meridian Dam** Received a proposal to support a pre-feasibility study for a dam on the South Saskatchewan River near the Saskatchewan/Alberta border. The Commission agreed with the Alberta Environment recommendation that no action be taken on this until the Saskatchewan government has completed its South Saskatchewan Basin plan and indicated willingness to participate in such a study.

■ **Federal/Provincial Soil Conservation Agreement** As a follow-up to the development of an Alberta soil and water conservation strategy, the Commission monitored progress and made recommendations on the development of a joint federal/provincial strategy and cost sharing agreement. The strategy will support provincial initiatives in soil conservation and



related water management and address topics such as marginal land conversion, landowner and municipal government incentives, equipment supply and technology transfer and awareness programs.

■ **Drought Monitoring** Continued its role in monitoring water supply and drought conditions and supported the development of the Water Supplies Assistance Program.

■ **Groundwater Policy** Monitored progress toward the adoption of the groundwater policy developed in the previous year.

■ **Irrigation Act** Reviewed proposals to amend the Irrigation Act to increase the powers of district boards allowing them to become actively involved in non-irrigation activities. The Commission cautioned that while this could benefit multi-purpose use, the scope of activities should be carefully controlled and protective mechanisms for district ratepayers adopted.

■ **Water Quality Considerations of Pulp Mills** Received information on pulp mill technologies, effluent standard setting, licensing procedures, monitoring parameters and activities and management and enforcement options if standards are not being met. Future management options were discussed.

■ **Federal/Provincial Flood Damage Reduction Agreement** Reviewed the terms of this ten year cost share agreement to map river flood zones, especially around urban areas, enabling both levels of government to control development in flood prone areas.

■ **Canadian Heritage Rivers Program** Reviewed status of Alberta's potential involvement in this program and agreed to collect more background information toward a possible recommendation on participation.

■ **Special Areas Water Supply Study** Reviewed a proposal for supplying water to the Special Areas from the Red Deer River for municipal, domestic, stock water and some irrigation use. The Commission will continue to monitor progress of this study.